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Appl. No. 10/044,688  
Amdt. dated August 28, 2006  
Reply to Office Action of May 2, 2006

### Remarks

The present amendment responds to the Official Action dated May 2, 2006. A petition for a one month extension of time to respond and authorization to charge Deposit Account No. 50-1058 the one month extension fee of \$120 accompany this amendment. The Official Action objected to claims 1, 10, and 15. The Official Action also rejected claims 1, 8, 10, 11, and 15 under 35 U.S.C. 112. Claims 1-4, 8-11, 15, and 16 were rejected under 35 U.S.C. 103(a) based on Tiedemann U.S. Patent No. 5,588,043 ("Tiedemann") in view of Hämäläinen U.S. Patent No. 6,570,860 ("Hämäläinen") and further in view of Beach U.S. Publication No. 2004/0165550 ("Beach"). Claims 5-7 and 12-14 were rejected under 35 U.S.C. 103(a) based on Tiedemann U.S. Patent No. 5,588,043 ("Tiedemann") in view of Hämäläinen U.S. Patent No. 6,570,860 ("Hämäläinen") and further in view of Padovani U.S. Patent No. 6,574,211 ("Padovani") and further in view of Fukugawa U.S. Patent No. 6,188,913 ("Fukugawa"). These grounds of rejection are addressed below following a brief discussion of the present invention to provide context. Claims 1, 8, 10, 11, and 15 have been amended to be more clear and distinct. Claims 1-16 are presently pending.

### The Present Invention

According to one aspect, the invention provides systems and techniques for locating an electronic shelf label (ESL) that has been moved out of the range of a communication base station (CBS) to which it was previously assigned or which fails to communicate with its assigned CBS for some other reason. If an ESL fails to respond to a communication, typically transmitted by an assigned CBS in a designated timeslot, a find command causes a

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communication addressed to the ESL to be transmitted by a plurality of CBSs across all timeslots of a frame. If a response is received, the CBS receiving the response, and the timeslot in which the response was received, are logged and the ESL may be assigned to the new ESL and timeslot. If the response is received by more than one CBS, selection may be performed so as to assign the ESL to the most favorable CBS, such as the CBS for which the response signal was strongest.

#### Objection to Claims 1, 10 and Section 112 Rejection

This objection and rejection are addressed by adopting the Examiner's suggested changes and by clarifying the language pointed out as unclear.

#### The Art Rejections

All of the rejections are based on Tiedemann, Hämäläinen, and Beach, taken in combination, or on Tiedemann, Hämäläinen, Beach, Padovani, and Fukugawa, taken in combination. As addressed in greater detail below, the cited references do not support the Official Action's reading of them and the rejections based thereupon should be reconsidered and withdrawn. Further, the Applicant does not acquiesce in the analysis of the cited references made by the Official Action and respectfully traverses the Official Action's analysis underlying its rejections.

The Official Action rejected claims 1-4, 8-11, 15, and 16 under 35 U.S.C. 103(a) as unpatentable over Tiedemann in view of Hämäläinen and Beach. This ground of rejection is respectfully traversed.

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The present invention, as claimed by claim 1, provides for a method of locating an ESL to the extent of identifying one or more CBSs and timeslots with which communication with the ESL can be conducted. Claim 1, as amended, reads as follows:

1. (currently amended) A communication method for an electronic shelf label (ESL) system utilizing frames divided into a plurality of timeslots, the method comprising the steps of:
  - (a) transmitting a find message to an ESL by a host computer, said find message transmitted by a plurality of communication base stations (CBSs) utilizing all of the timeslots of a frame;
  - (b) logging which CBS or CBSs received a response returned by the ESL in response to the find message, and logging the timeslot in which the response was received;
  - (c) determining a new CBS assignment and a new timeslot assignment for the ESL;
  - (d) transmitting an assign command to the ESL utilizing the timeslot in which the response was received instructing the ESL to listen for messages on the new timeslot.

Neither Tiedemann, Hämäläinen, Beach, nor any combination thereof teaches or makes obvious these limitations in the claimed combination. Tiedemann addresses the field of mobile telephony, not electronic shelf labels. Moreover, Tiedemann does not operate in the same way, and does not achieve the same results, as does the invention as claimed by claim 1.

Tiedemann, teaches systems and techniques for mobile telephone registration, based on a variety of criteria. Registration by a mobile telephone helps to identify a range of base stations within whose coverage area a mobile telephone is located, and thereby to limit the number of base stations that must page the mobile telephone in order to deliver an incoming call. Tiedemann teaches paging of a mobile telephone, and a coverage area in which the mobile telephone is located may be identified by the response of the telephone to a page, but Tiedemann does not identify the location of a mobile telephone in the same way as the present invention, as claimed by claim 1, locates an ESL. For example, Tiedemann does not transmit a find request to a telephone using a plurality of base stations, each base station transmitting the request using all

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timeslots of a frame. Tiedemann teaches, at col. 14, line 66-col. 15, line 20, that a mobile telephone may have a mode in which it can receive a page command in any timeslot, but this is done in order to free a base station from the need to follow the timeslot index of the mobile telephone in order to issue a page. When the mobile telephone is not in the slotted mode, it can receive a page in any timeslot, but this does not mean that the base station transmits a page command in all timeslots. If a base station transmitted a page in all timeslots, a mobile telephone within range and communicating properly would be sure to receive the page whether it were in slotted mode or not, because even if it received a page in only one timeslot, the base station, transmitting the page in all timeslots, would be sure to issue the page in the timeslot the mobile telephone was set to receive.

It seems unlikely that a mobile telephone system base station would operate to issue a page in all timeslots, because such an operation would severely burden the operation of the system. A mobile telephone base station must communicate with many mobile telephones, and must page many telephones. For a mobile telephone base station to use all timeslots of a frame, whenever it needed to page a telephone would severely tax the resources of the system.

An ESL system, by contrast, does not need to communicate with ESLs all the time. Communication typically occurs only at intervals, when an ESL needs to be updated, or when maintenance and checking of ESLS needs to be performed. Thus, it is appropriate for a number of CBSs, or even all CBSs, in a system to spend the communication resources needed to locate a missing ESL. Claim 1, as amended, therefore defines over Tiedemann.

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Adding Härmäläinen does not cure the deficiencies of Tiedemann as a reference with respect to claim 1, as amended. The Official Action cites Härmäläinen as teaching an assignment of a new base station and timeslot to a mobile station, in which a mobile station receives a communication from its old base station in its old timeslot, instructing it to communicate with its new assigned base station in its new timeslot. Such a procedure does not combine with Tiedemann to achieve the invention as claimed by claim 1, including transmitting a find command on all timeslots of a frame. Moreover, the handover procedure of Härmäläinen would be ineffective in many cases addressed by the present invention. Härmäläinen is directed toward a handover between adjacent cells, in which communication with a mobile station is passed from one base station to another when the mobile station is within range of both base stations. In many cases not contemplated by Härmäläinen, such as a movement of a communication device when communication was not occurring, the old base station would not be available to send the assignment message. The invention as claimed by claim 1 does not require that an assignment command be transmitted by the CBS originally communicating with the ESL.

Adding Beach to Tiedemann and Härmäläinen does not cure their deficiencies as references with respect to claim 1. Beach teaches an infrastructure for wireless communication, and Fig. 6 of Beach is cited as teaching an ESL system. However, it is not proper to cite the mere concept of an ESL system and state that it is obvious to combine the ESL system with other references in a different field of art. Moreover, as noted above, applying the teachings of Tiedemann and Härmäläinen would not achieve the invention as claimed by claim 1. Claim 1, as amended, therefore defines over the cited art and should be allowed.

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Claim 8, as amended, reads as follows:

8. (currently amended) An electronic shelf label (ESL) system comprising:  
an ESL for displaying information,  
a plurality of communication base stations (CBSs) communicatively connected to a host computer;  
a host computer for initiating transmission of a find message to the ESL, said find message transmitted by the plurality of CBSs utilizing all of the timeslots of a frame, logging which CBS or CBSs received a response returned by the ESL in response to the find message, and logging the timeslot in which the response was received, determining a new CBS assignment and a new timeslot assignment for the ESL, and transmitting an assign command to the ESL utilizing the timeslot in which the response was received instructing the ESL to listen for messages on the new timeslot.

As noted above with respect to claim 1, neither Tiedemann, Hämäläinen, Beach, nor a combination thereof teaches or makes obvious these limitations, for example, a host computer for initiating transmission of a find message to an ESL, the find message being transmitted by a plurality of CBSs utilizing all timeslots of a frame. Claim 8, as amended, therefore defines over the cited art and should be allowed.

Claim 15, as amended, reads as follows:

15. (original) An electronic shelf label (ESL) update method to allow for ESL relocation in a retail establishment including an ESL system utilizing frames divided into a plurality of timeslots, the method comprising the steps of:

- (a) relocating an ESL and items associated with the ESL from a first location in a retail establishment to a second location in the retail establishment;
- (b) transmitting a message to the ESL by a host computer, said message transmitted by one of a plurality of communication base stations (CBSs) utilizing one of the timeslots of a frame, said CBS being the CBS that was assigned to the ESL when the ESL was in the first location in the retail establishment;
- (c) waiting for a response to the message;
- (d) if no response is received by the host computer, transmitting a find message, said find message transmitted by all of the plurality of CBSs utilizing all of the timeslots of a frame;
- (e) logging which CBS or CBSs received a response to the find message and logging the timeslot in which the response to the find message was received;
- (f) determining a new CBS assignment and a new timeslot assignment for the ESL; and

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(g) transmitting an assign command to the ESL utilizing the timeslot in which the response was received instructing the ESL to listen for messages on the new timeslot.

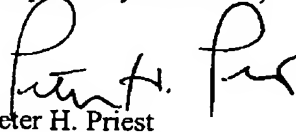
As noted above with respect to claim 1, neither Tiedemann, Hämäläinen, Beach, nor a combination thereof teaches or makes obvious these limitations, for example, transmitting a find message, said find message transmitted by all of a plurality of CBSs utilizing all of the timeslots of a frame. Claim 15, as amended, therefore defines over the cited art and should be allowed.

The Official Action rejected claims 5-7 and 12-14 under 35 U.S.C. 103(a) as unpatentable over Tiedemann in view of Hämäläinen and Beach and further in view of Padovani and Fukugawa. Claims 5-7 are dependent claims having claim 1 as a base claim and claims 12-14 are dependent claims having claim 8 as a base claim. Because claims 1 and 8 have been shown to be allowable, claims 5-7 and 12-14 should also be allowed.

#### Conclusion

All of the presently pending claims, as amended, appearing to define over the applied references, withdrawal of the present rejection and prompt allowance are requested.

Respectfully submitted,



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